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Argument

Claims 6-10 and 12 have been rejected under 35 USC 102(b) as anticipated by a newly discovered reference, Julien (WO9729892), which is the published PCT application corresponding to U.S. Application No. 09/125,218 filed on August 19, 2004 and issued as P/N 6,293,020, which Applicant cited in the first paragraph of this application. This Julien reference discloses a cutting instrument made of 60 Nitinol, and a process for making the cutting instrument. The process includes the steps of
selecting a Type 60 Nitinol sheet 352 that has been hot-rolled to a thickness of about 3.16" at a temperature of about 850°C to 900°C;
cutting blade blanks 350 from said sheet;
heating said blanks to between 600°C to about 900°C and **allow them to cool slowly in air to ambient temperature** to produce blanks having a hardness greater than about 50RC; and
grinding one edge of said blade blanks to a sharp edge.

Claim 6 of this Application calls for a method of making ice blades, comprising
selecting a Type 60 Nitinol sheet that has been hot-worked at a temperature of about 900°C to 950°C **to a reduction of at least about 2% in the dimension of said hot-working**;
cutting ice blade blanks from said sheet;
heating said blanks to between 600°C to about 800°C and **immediately quenching** said blanks to ambient temperature to produce blanks having a hardness of about 48-53RC; and
grinding one edge of said blade blanks to a desired profile and sharpness.
(bolding added)

The steps in the Julien PCT publication are different from the steps in claim 6, as indicated by the bolding of the two process descriptions above. They are significantly different, so Applicant believes he could make a convincing case for non-obviousness, but obviousness is not an issue in a §102 anticipation rejection. The

processes are substantially different, and that is the end of the matter. Claim 6 of this application is not anticipated by the Julien PCT publication.

Claims 7 and 8 call for heat treating of the bottom of the blade to produce a very hard and erosion resistant surface, wherein the heat treating of the bottom of the blade includes heating the one edge to an elevated temperature of about 850-1000°C and immediately quenching the blade blank to produce a hardness at the one edge of above 56RC. This is a differential heat treatment that preserves the toughness of the blade body while producing a very hard and slippery ice-contacting skate blade edge. This process is not used in the knife blade process of the Julien PCT publication. That process uses a heat treating schedule of heating to 400°C-600°C and allowing the blade blank to cool slowly to prevent brittleness in the blade edge. This is just the opposite of the process claimed in claims 7 and 8.

Claim 10, dependent on claim 6, calls for heating the part to a **temperature above 700°C;**

placing the part between **matched dies** having a die interface profile corresponding to the desired shape; and

holding the part at that temperature **for a period of at least about 15 minutes.**

The Julien PCT publication describes a straightening process of heating the knife blade blank to between 800°C and 900°C and then pressing the hot blade blank against a flat surface and holding it there until it cools to room temperature. In the process claimed in claim 10, there is no need to hold it in the die until it cools to room temperature. It merely needs to cool down for 15 minutes. The temperatures, holding surfaces and holding periods are different in the two processes, as indicated by added bolding, and therefore the Julien PCT publication does not anticipate claim 10, therefore indicating distinctions that are additional to the distinctions over the reference shown in claim 6.

Claims 1-4 and 13-20 have been rejected under 35 USC 103m as unpatentable over Applicant's disclosure, Abkowitz (6,318,738) and Julien PCT publication WO9729892.

Abkowitz specifies skate blade materials made of a titanium alloy "which is reinforced by a hard constituent" (col 2, lines 5-6). He specifically mentions an alloy of titanium, aluminum and vanadium with titanium carbide particles dispersed therein. He also discloses a titanium skate blade clad in "high hardness" oxidized zirconium (col 3, lines 17-18). He states that these materials offer high hardness for good edge retention and wear resistance. Abkowitz does not disclose or suggest the use of 60 Nitinol as a skate blade material, even though it was known at the time of his invention.

The Julien PCT publication discloses a cutting instrument made of 60 Nitinol. This reference makes a very good case for 60 Nitinol as a cutting instrument, but there is nothing in the disclosure or in the properties of 60 Nitinol as disclosed in this publication that would lead a person of ordinary skill in the art to make skate blades of 60 Nitinol. Applicant asserts that it would not have been obvious to a person of ordinary skill in the art to use Type 60 Nitinol for an ice skate blade because the physical properties of 60 Nitinol, specifically its low modulus and its low load resistance in conventional three-point bending tests, and also its low hardness, appear to make it a worse candidate for skate blades than conventional steel. High hardness and "strength" are factors that Abkowitz cited as desirable in his skate blade materials but are lacking in 60 Nitinol (at least in some definitions of "strength", such as conventional three-point bending tests used by the industry), so Abkowitz actually teaches away from the use of a material like 60 Nitinol. Moreover, 60 Nitinol is much more expensive than steel and is much harder to cut and sharpen, so making blades out of 60 Nitinol is much more difficult, and sharpening the blades with conventional grinding wheels is almost impossible. These considerations would be enough to convince a person of ordinary skill in the art that 60 Nitinol would be a poor candidate for skate blade material.

Applicant submitted a Declaration under Rule 132 by Susan Buchanan, President of Triumph Sport, Inc., licensee of this Application. In this Declaration, Ms

Buchanan recounts the experience of Triumph Sport in trying to promote Nitinol skate blades. This Declaration is powerful evidence in opposition to the Examiner's conclusion that the use of 60 Nitinol would be obvious to a person of ordinary skill in the art for use in skate blades.

Even if a person of ordinary skill in the art were determined enough to actually make and test skate blades made of 60 Nitinol, in spite of the evident factors noted above indicating the undesirability of 60 Nitinol as a skate blade material, he would quickly conclude that it would not be suitable for skate blades. Type 60 Nitinol skate blades feel different to skaters than conventional steel blades, as explained in detail in Ms. Buchanan's Rule 132 Declaration. They feel like dull steel blades and skaters feel unstable on the blades, even when standing in a neutral position. It takes several hours to get used to the different way skates with 60 Nitinol blades feel on the ice and, without knowing that the performance will be better after becoming accustomed to the way the Nitinol skate blades feel, a person of ordinary skill in the art would reject them as inferior to convention skate blades. In fact, experts in the art have come to the same conclusion.

These notions about how those of ordinary skill in the art would react to the idea of using 60 Nitinol for skate blades are not merely Applicant's opinions. They have, unfortunately, been proven in painful experience during the promotion efforts of Applicant's licensee, Triumph Sport, Inc., as set forth in detail in the Declaration under Rule 132 by the President of Triumph Sport, Inc., Susan Buchanan, originally submitted on June 30, 2006, and resubmitted with Amendment filed on Jan. 17, 2007. This Declaration describes the reaction of CCM, also known as Sport Mask, Inc., one of the biggest skate manufacturers in the world, to the offer of Nitinol skate blades for CCM's skates. It should be noted that CCM did not identify 60 Nitinol as a potential skate blade material even though it had existed since the early 1960's; it was brought to their attention by Triumph Sport. CCM did not need to discover how to make skate blades from 60 Nitinol; the sample blades were supplied by Triumph Sport from samples supplied by Applicant. CCM did not have to learn how to sharpen the 60 Nitinol blades; the special grinding wheels and processes were supplied by Triumph Sport. Yet, even after being lead by the hand through all the

difficult steps that the Examiner assumes to have been obvious to a person of ordinary skill in the art, CCM (some of the world's foremost experts in skating) concluded that 60 Nitinol skates do not afford any significant benefits, and they declined to consider that matter any further. CCM were not the only experts who declined the offer by Triumph Sport to adopt 60 Nitinol skate blades.

If experts like CCM and others in the industry can conclude that 60 Nitinol is not a suitable material for skate blades, even after having the benefits explained to them in detail and having sample blades provided, Applicant can only conclude that a person of ordinary skill in the art, lacking the extensive experience and accumulated knowledge of a leader in the skating industry, would not come to any wiser conclusion. There is no better test of what is obvious to a person of ordinary skill in the art than the actual reaction of experts in the art. The test of obviousness is not the perception of extraordinary visionaries like Applicant and Applicant's licensee Susan Buchanan, but what would have been obvious to persons of ordinary skill in the art. Applicant believes that the experts in the skating industry have proven conclusively that the use of 60 Nitinol for skate blades was unobvious, even after being introduced to it in great detail. The mere fact that 60 Nitinol existed along with hundreds of thousands of other potentially usable materials certainly would not have been sufficient to make it obvious to a person of ordinary skill in the art, especially in view of the very substantial apparent disadvantages that would attend its use.

Claim 11, dependent on claim 10 has been rejected under 35 USC 103 as unpatentable over the Julien PCT publication. That publication discloses a process for straightening the blade for a cutting instrument that includes the steps of heating the knife blade blank to between 800°C and 900°C and then pressing the hot blade blank against a flat surface and holding it there until it cools to room temperature.

Claim 11, dependent on claim 10 and claim 6, calls for heating the part to a **temperature above 700°C;**

placing the part between **matched dies** having a die interface profile corresponding to the desired shape; and

holding the part at that temperature for a period of at least about 15 minutes; and

immediately after the holding period, rapidly quenching the part in coolant from that temperature to a temperature below about 400°C.

The Julien PCT publication describes a straightening process of heating the knife blade blank to between 800°C and 900°C and then pressing the hot blade blank against a flat surface and holding it there until it cools to room temperature. In the process claimed in claim 11, there is no need to hold it in the die until it cools to room temperature. It merely needs to cool down below 400°C. The temperatures, holding surfaces and holding periods are different in the two processes, as indicated by added bolding, and therefore the Julien PCT publication does not disclose the claimed process, and there have been no references cited which would teach a person of ordinary skill in the art the desirability of changing the process shown in the PCT publication to the one claimed in claim 11. Therefore the process of claim 11 would have been unobvious to a person of ordinary skill in the art in view of the PCT publication.

Applicant has presented objective evidence of the unobviousness of the claimed invention to those having ordinary skill in the art, and to those who are the world's premier experts in the skate art. The adherence of the Examiner to his opinion of obviousness is, in Applicant's view, a classic example of hindsight. Applicant understands how the Examiner can reach his own conclusions about obviousness, but Applicant believes that objective evidence to the contrary should be accorded greater weight than the Examiner's personal experience which is not based on a detailed intimate knowledge of the skate art, as is the Declaration under Rule 132 by the President of Triumph Sport, Inc., Susan Buchanan.

By happy coincidence, a report is in final preparation by investigators at the Department of Kinesiology in the University of Quebec that shows that Nitinol blades show 2-5% greater speed vs. steel. This is an astonishing improvement, considering that Olympic speed skating races are often won by fractions of a second. It also has important implications for ice hockey because Nitinol skate blades enable

the player to reach the puck more quickly. This report will be sent to the Examiner as soon as the final draft is completed.

Accordingly, Applicant believes that the claims in this application do define subject matter that is patentable over the prior art and respectfully requests that the Examiner pass this application to issue.

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Respectfully submitted,



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